RIVERBEND ESTATES (PWS 6390018)
SOURCE WATER ASSESSMENT FINAL REPORT

September 28, 2001

State of Idaho
Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for the Riverbend Estates* describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Riverbend Estates (PWS 6390018) drinking water system consists of two well sources (approximately 30- feet apart) that are manifolded together. Well #2 is the primary well and Well #1 is completely shut off during the winter months. A review of the Idaho Drinking Water Information Management System (DWIMS) revealed past drinking water quality information for the two wells. Total coliform bacteria were detected at various sample locations in the distribution system. The inorganic chemicals barium, fluoride, nitrate, and sodium have been detected in the source water, but at levels below the Maximum Contaminant Levels for drinking water. No volatile organic chemicals or synthetic organic chemicals have been detected in either well source. The potential sources of contamination within the delineation capture zones include a mine site, business mailing list site, individual septic systems, and an irrigation overflow pond. Additionally State Highway 37, Interstate 86, and a paved road are transportation corridors that cross the delineations. The paved road is within 30 feet of the wells. If an accidental spill occurred in any of these corridors, inorganic chemical contaminants, volatile organic chemical contaminants, synthetic organic chemical contaminants, or microbial contaminants could be added to the aquifer system.

The final well ranking for Well #1 is high for inorganic, volatile organic, synthetic organic and microbial contaminants. The final well ranking for Well #2 is high for inorganic, volatile organic, synthetic organic and microbial contaminants. The presence of potential sources of contamination, agricultural land uses, and the composition of the vadose zone (zone from land surface to the water table) contributed to the overall rating for the wells.

For the Riverbend Estates, source water protection activities should focus on implementation of practices aimed at keeping the distribution system free of microbial contaminants. Disinfection practices should be maintained to prevent microbial contamination from becoming a concern. Land uses within most of the source water assessment area are outside the direct jurisdiction of Riverbend Estates. Therefore, partnerships with state and local agencies should be established to ensure future land uses are protective of ground water quality. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission and Power County Soil and Water Conservation District, and the Natural Resources Conservation Service.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR RIVERBEND ESTATES, AMERICAN FALLS, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are contained in this report. The list of significant potential contaminant source categories and their rankings used to develop this assessment is also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. This **assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

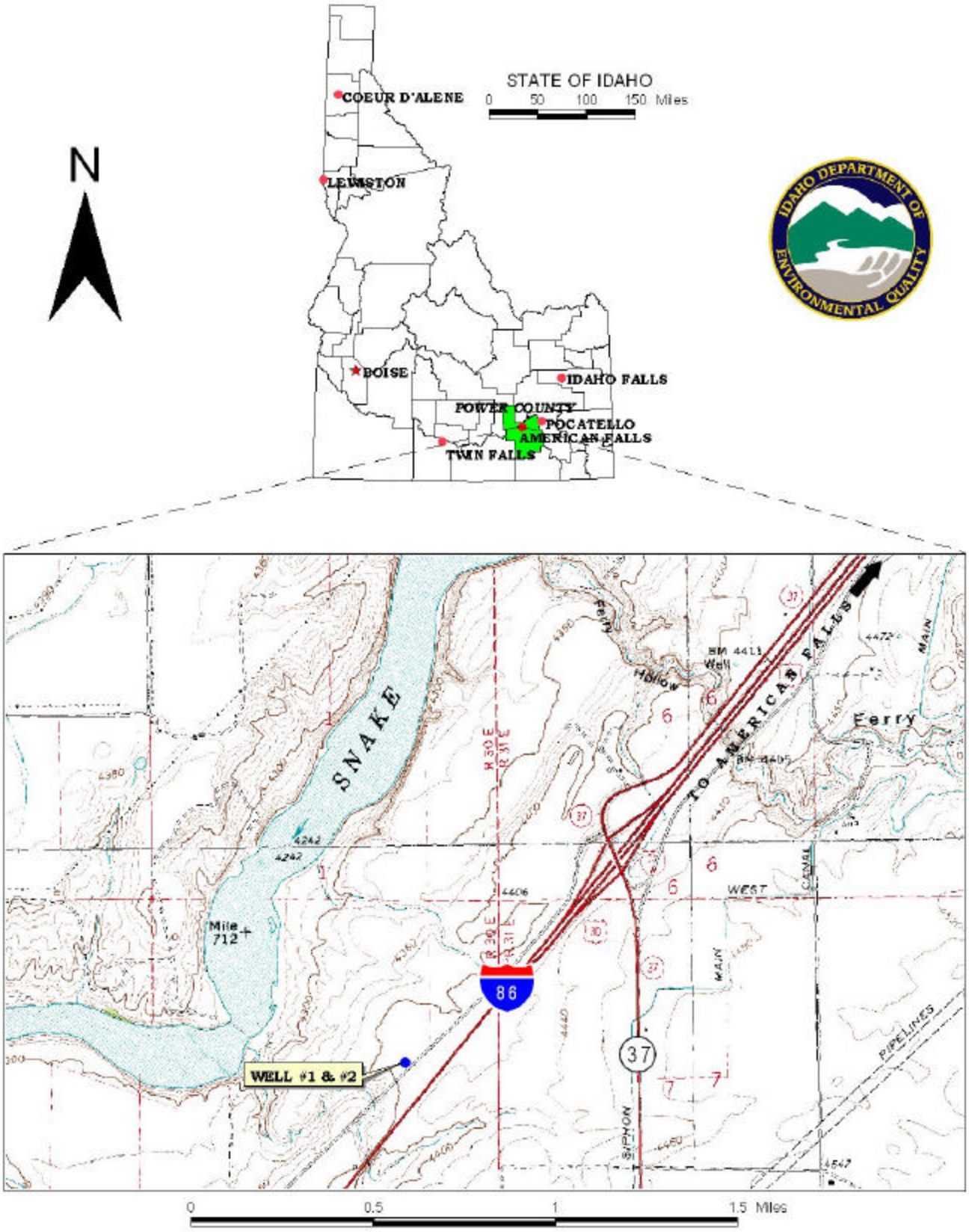
The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Riverbend Estates is a community public drinking water system serving approximately 100 persons. The water system consists of two well sources (approximately 30 feet apart) that are manifolded together. The water system is located approximately seven miles west of the City of American Falls in Power County (Figure 1).

FIGURE 1. Geographic Location of the Riverbend Estates



The inorganic chemicals (IOCs) barium, fluoride, nitrate, and sodium represent the main water chemistry recorded in the public water system, although the reported concentrations of these chemicals were below the Maximum Contaminant Levels (MCLs) for each chemical. Total coliform bacteria were detected at various locations in the distribution system. Water chemistry tests have not detected volatile organic contaminants (VOCs) or synthetic organic contaminants (SOCs) in the drinking water.

Defining the Zones of Contribution--Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a pumping well) for water in the aquifer. Washington Group, International (WGI) used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Rockland Valley Hydrologic Province in the vicinity of the Riverbend Estates. The computer model used site specific data, assimilated by WGI from a variety of sources including Riverbend Estates well logs, operator records, and hydrogeologic reports summarized below.

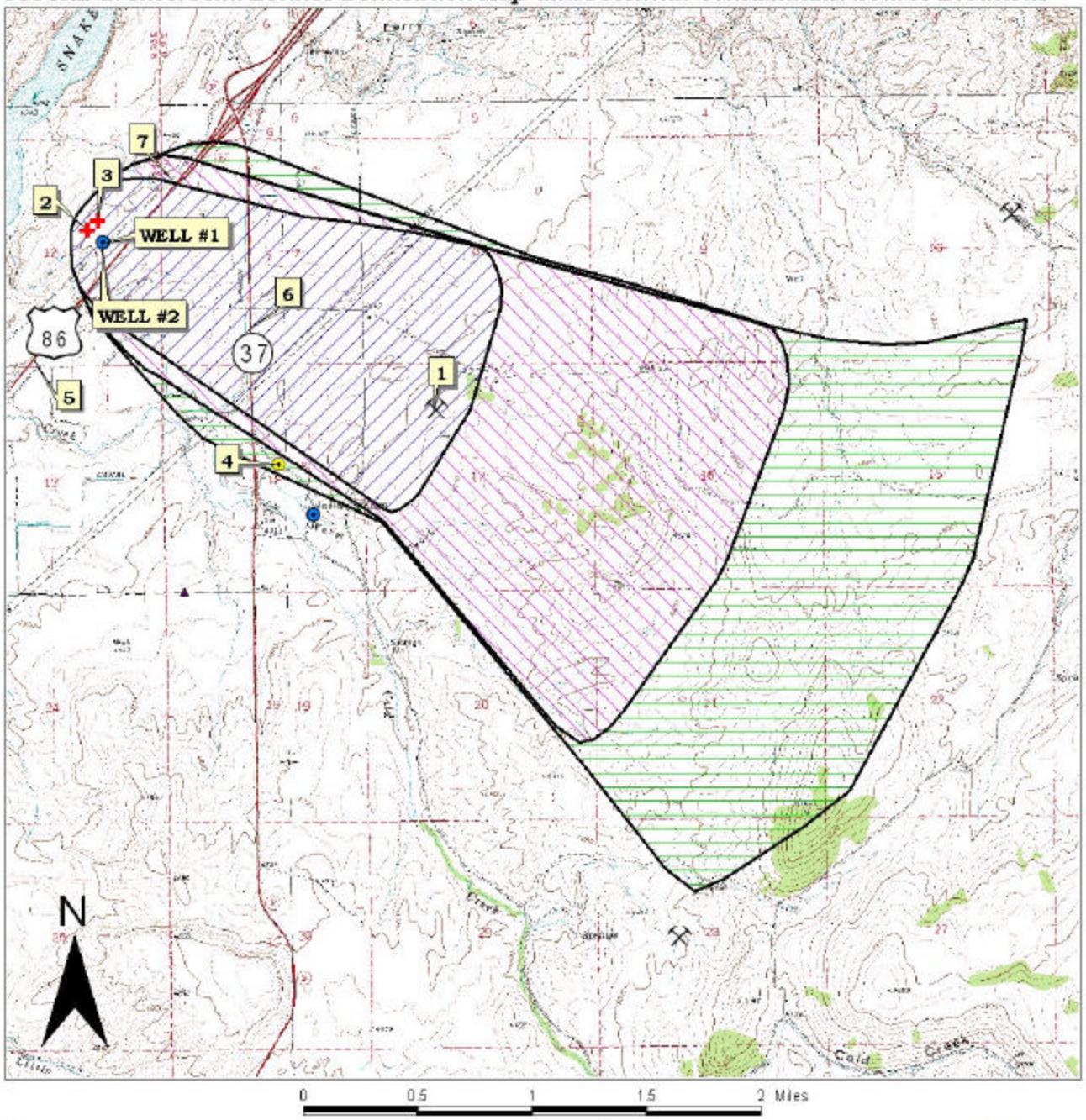
Riverbend Estates is located in the northeast corner of the Rockland Valley Hydrologic Province. The Rockland Valley Hydrologic Province is approximately 221 square miles of the southeastern Idaho Snake River drainage and is within the more extensive Rockland Basin. The Rockland Basin was formed by basin-and-range extension with the long axis trending in a north-south direction. The elevations within the larger Rockland basin range from 4,200 feet above mean sea level (msl) at the northern end where Rock Creek converges with the Snake River and 8,700 feet msl at Deep Creek Peak found at the valley's eastern border in the Deep Creek Mountains. The Sublet Range bounds the valley to the west (Washington Group International, Inc., 2001, p. 4-5).

The principal aquifers in the northern portion of the Rockland Basin consist of basalt and sedimentary rocks interbedded with volcanic rocks. In this area, the ground water is controlled by local geology. The central and southern portions of the basin consist of sand and gravel sequences within sedimentary rocks that are the principal aquifers. The ground water in this environment is also controlled by local geology (Washington Group International, Inc., 2001, p. 4).

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified four potential sources of contamination within the delineation areas. These sources include a geothermal mine, individual septic systems, an irrigation (overflow) pond, and a recreational vehicle park. Additionally State Highway 37, Interstate 86, and a paved road are transportation corridors that cross the delineations. The road and the highway are considered potential contaminant sources because if an accidental spill occurred in any of these corridors, IOCs, VOCs, SOCs, or microbial contaminants could be added to the aquifer system.

FIGURE 2. Riverbend Estates Delineation Map and Potential Contaminant Source Locations



LEGEND

Time of Travel Zones
- 1B (3 yr TOT)
- 2 (6 yr TOT)
- 3 (10 yr TOT)
- Wellhead
- Enhanced Inventory
- CERCLIS Site
- RCRIS Site
- Dairy
- LUST Site
- Closed UST Site
- Open UST Site
- Business Mailing List
- NPDES Site
- Mine
- AST
- Toxic Release Inventory
- SARA Title III Site (EPCRA)
- Recharge Point
- Injection Well
- Group1 Site
- Cyanide Site
- Landfill
- Wastewater Land App.Site

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PWS# 6390018
WELL #1 & #2

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted during the summer of 2001. The first phase involved identifying and documenting potential contaminant sources within the Riverbend Estates Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second or enhanced phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the areas. This task was undertaken with the assistance of Mr. Steve Knudsen. Two additional potential sources of contamination were found within the delineated source water areas during the enhanced inventory.

Table 1. Riverbend Estates Potential Contaminant Inventory for Well #1 and Well #2

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
1	Geothermal Mine	0-3	Database Search	IOC
2	Septic Systems	0-3	Enhanced Inventory	IOC, Microbials
3	Pond (Irrigation Overflow)	0-3	Enhanced Inventory	IOC, SOC, Microbials
4	Recreational Vehicle Park	6-10	Database Inventory	IOC, Microbials
5	Highway 86	0-3	GIS Map	IOC, VOC, SOC, Microbials
6	Highway 37	0-10	GIS Map	IOC, VOC, SOC, Microbials
7	Paved Road	0-3	GIS Map	IOC, VOC, SOC, Microbials

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

The susceptibility of the wells to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the wells, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for the wells is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors. These factors are surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity was rated high for each well (Table 2). This indicates the wells are potentially sensitive due to the moderate to well soil drainage classes, near-surface permeable volcanic materials, the vadose zone (zone from land surface to the water table) composition of predominately volcanic material, and the lack of low permeability materials between the surface and the water-producing zone of the aquifer. The depth to first ground water is less than 300 feet. These factors offer little filtering capacity for removing potential contaminants of concern prior to their impacting the drinking water sources.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system that can better protect the water. If the casing and annular seal both extend into a low permeability unit then the possibility of cross contamination from other aquifer layers is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. When information was adequate, a determination was made as to whether the casing and annular seals extend into low permeability units and whether current public water system (PWS) construction standards are met.

The system construction scores for Well #1 and Well #2 were moderate. Well logs were available for both wells. The well logs and Sanitary Survey provide detailed information to determine the system construction rating for each public water source. The wellheads and surface seals are properly maintained and do not fall within the 100-year floodplain.

The highest production zone for Well #1 and Well #2 is within 100 feet below static water level. For both wells, the casing and annular seal do not extend into a low permeable geologic formation, two important aspects of proper well construction.

The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all public water systems (PWSs) to follow DEQ standards. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Under current standards, all PWS wells are required to have a 50-foot buffer around the wellhead. These standards are used to rate the system construction for the well by evaluating items such as condition of wellhead and surface seal, whether the casing and annular space is within consolidated material or 18 feet below the surface, the thickness of the casing, etc. If all criteria are not met, the public water source does not meet the IDWR Well Construction Standards. Table 1 of the *Recommended Standards for Water Works (1997)* states that 6-inch diameter steel casing requires a thickness of 0.280-inches. For Well #1 and Well #2, the thickness of the 6-inch diameter steel casing is 0.250-inches.

Potential Contaminant Source and Land Use

The potential contaminant sources and land use within the delineated zones of water contribution are assessed to determine each well's susceptibility. When agriculture is the predominant land use in the area, this may increase the likelihood of agricultural wastewater infiltrating the ground water system. Agricultural land is counted as a source of leachable contaminants and points are assigned to this rating based on the percentage of agricultural land. The dominant land use for the Riverbend Estates is irrigated cropland. The land use within the immediate area of the wellheads is predominantly urban.

The wells rated high (Table 2) for inorganic chemicals (IOCs) (i.e. barium, nitrate, sodium), and moderate for synthetic organic chemicals (SOCs) (i.e. pesticides), volatile organic chemicals (VOCs) (i.e. petroleum products) and microbial contaminants. The locations of potential contaminant sources for each well is shown on Figure 2.

Final Susceptibility Rating

A detection above a drinking water standard (MCL), any detection of a VOC or SOC, or having potential contaminant sources within 50 feet of the wellhead will automatically give a high susceptibility rating to the final well ranking despite the land use of the area because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking. In this case, both wells automatically rank high for all categories because a paved road exists within 50 feet of the wells. The final well ranking for Well #1 and Well #2 is high for IOC, VOC, SOC, and microbial contaminants.

Table 2. Summary of Riverbend Estates Susceptibility Evaluation

Drinking Water Source	Susceptibility Scores									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	M	M	M	H	H*	H*	H*	H*
Well #2	H	H	M	M	M	H	H*	H*	H*	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical,

[2] H(*) = source rates high automatically due to paved road within 50 feet of wellheads and high due to overall susceptibility score

Susceptibility Summary

Barium, fluoride, nitrate, and sodium represent the main water chemistry recorded in the public water system, although the reported concentrations of these contaminants in the system were below the MCLs for each contaminant. DEQ records indicate no detection of VOC or SOC contaminants in the drinking water.

The county level agriculture-chemical use is considered high in this area due to a significant amount of agricultural land. Although there may only be a small portion of agriculture land in the direct vicinity of the wells, it is useful as a tool in determining the overall chemical usage such as pesticides and how it may impact ground water through infiltration and surface water runoff. In addition, there were potential sources of contamination found within the wells delineated time of travel zones (Figure 2).

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the Riverbend Estates, source water protection activities should focus on implementation of practices aimed at keeping the distribution system free of microbial contaminants. Disinfection practices should be maintained to prevent microbial contamination from becoming a concern. Any spills from the multiple potential contaminant sources in the delineated capture zones should be monitored carefully to prevent contaminants from infiltrating the ground water. Land uses within most of the source water assessment area are outside the direct jurisdiction of Riverbend Estates. Therefore, partnerships with state and local agencies should be established to ensure future land uses are protective of ground water quality. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

DEQ Pocatello Regional Office (208) 236-6160

DEQ State Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

References Cited

Drinking Water Information Management System (DWIMS). Idaho Department of Environmental Quality

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environment Managers, 1997. "Recommended Standards for Water Works."

Idaho Division of Environmental Quality Ground Water Program, October 1999. Idaho Source Water Assessment Plan.

Idaho Department of Environmental Quality. 2000. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Southeastern District Health Department April 21, 1998. Riverbend Estates Sanitary Survey: PWS #6390018, Power County.

Washington Group International, Inc, March 2001. Source Area Delineation Report Rockland Valley Hydrologic Province.

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Attachment A

Riverbend Estates
Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : RIVERBEND ESTATES Well #1 Public Water System Number 6390018

1. System Construction		SCORE				
Drill Date		6/2/78				
Driller Log Available		YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	1998			
Well meets IDWR construction standards		NO	1			
Wellhead and surface seal maintained		YES	0			
Casing and annular seal extend to low permeability unit		NO	2			
Highest production 100 feet below static water level		NO	1			
Well located outside the 100 year flood plain		YES	0			
	Total System Construction Score		4			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained		NO	2			
Vadose zone composed of gravel, fractured rock or unknown		YES	1			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		NO	2			
	Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND		2	2	2	2
Farm chemical use high		YES	0	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A		YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A			2	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)		YES	5	2	2	4
(Score = # Sources X 2) 8 Points Maximum			8	4	4	8
Sources of Class II or III leacheable contaminants or		YES	9	2	2	
4 Points Maximum			4	2	2	
Zone 1B contains or intercepts a Group 1 Area		NO	0	0	0	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B			16	10	10	12
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present		YES	2	2	2	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Land Use Zone II	25 to 50% Irrigated Agricultural Land		1	1	1	
Potential Contaminant Source / Land Use Score - Zone II			4	4	4	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present		YES	1	1	1	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of		NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III			2	2	2	0
Cumulative Potential Contaminant / Land Use Score			24	18	20	14
4. Final Susceptibility Source Score			15	14	14	15
5. Final Well Ranking			High	High	High	High

Ground Water Susceptibility Report Public Water System Name : RIVERBEND ESTATES Well #2 Public Water System Number 6390018

1. System Construction		SCORE				
Drill Date		6/2/78				
Driller Log Available		YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	1998			
Well meets IDWR construction standards		NO	1			
Wellhead and surface seal maintained		YES	0			
Casing and annular seal extend to low permeability unit		NO	2			
Highest production 100 feet below static water level		NO	1			
Well located outside the 100 year flood plain		YES	0			
Total System Construction Score			4			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained		NO	2			
Vadose zone composed of gravel, fractured rock or unknown		YES	1			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		NO	2			
Total Hydrologic Score			6			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND		2	2	2	2
Farm chemical use high		YES	0	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A		YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A			2	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)		YES	5	2	2	4
(Score = # Sources X 2) 8 Points Maximum			8	4	4	8
Sources of Class II or III leacheable contaminants or		YES	9	2	2	
4 Points Maximum			4	2	2	
Zone 1B contains or intercepts a Group 1 Area		NO	0	0	0	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B			16	10	10	12
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present		YES	2	2	2	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Land Use Zone II	25 to 50% Irrigated Agricultural Land		1	1	1	
Potential Contaminant Source / Land Use Score - Zone II			4	4	4	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present		YES	1	1	1	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of		NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III			2	2	2	0
Cumulative Potential Contaminant / Land Use Score			24	18	20	14
4. Final Susceptibility Source Score			15	14	14	15
5. Final Well Ranking			High	High	High	High